

AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1. (Previously presented) A clamping device for fixing a clamping object to a base by releasably engaging with an inner wall of a hole or a side wall formed in the clamping object, the clamping device comprising:

a clamping main body fixed to the base and which is communicatingly formed with a rod insertion hole and a piston receiving cavity;

a clamping rod which is inserted through the rod insertion hole of the clamping main body, a top-end portion of the clamping rod protruding from the clamping main body, the top-end portion being provided with an engagement portion engageable with the inner wall of the hole or the side wall;

a piston member movably mounted in the piston receiving cavity of the clamping main body;

a rod support mechanism which moves the engagement portion of the clamping rod in a direction roughly rectangular to the longitudinal direction of the clamping rod and switchably supports the clamping rod in the clamping main body or the piston member between a clamping position of the clamping rod and a clamp release position of the clamping rod;

a piston driving mechanism for driving the piston member between a first position corresponding to the clamping position of the clamping rod and a second position corresponding to the clamp release position of the clamping rod, the piston driving mechanism being provided with a spring for urging the piston member to the first position corresponding to the clamping position of the clamping rod and with a hydraulic chamber for driving the piston member to the second position corresponding to the clamp release position of the clamping rod by hydraulic pressure; and

a cam mechanism for driving the engagement portion of the clamping rod in a clamping direction roughly rectangular to the longitudinal direction of the clamping rod by a driving force of the piston driving mechanism driving the piston member to the first position.

2. (Original) The clamping device according to claim 1, further comprising a rod return mechanism for returning the clamping rod to the clamp release position when the piston member is moved to the clamp release position.

3. (Original) The clamping device according to claim 2, wherein the rod support mechanism is constituted so as to rotatably support a longitudinal midway portion of the clamping rod on the clamping main body.

4. (Previously presented) The clamping device according to claim 3, wherein the cam mechanism is provided with a sphere or a roller rotatably mounted on a base end portion of the clamping rod and an inclined portion being formed in the piston member so that the sphere or the roller makes contact therewith.

5. (Original) The clamping device according to claim 3 or 4, wherein the rod return mechanism is provided with a guided portion provided in the clamping rod and a guide provided in the piston member, which guides the guided portion and switches the clamping rod to the clamp release position.

6. (Original) The clamping device according to claim 2, wherein the rod support mechanism is constituted so as to slidably support the base end portion of the clamping rod on the piston member in a direction rectangular to the longitudinal direction of the clamping rod.

7. (Previously presented) The clamping device according to claim 6, wherein:

the cam mechanism is provided with a sphere or a roller rotatably mounted on the inner wall of the rod insertion hole of the clamping main body, and

an inclined portion is formed in the clamping rod so that the sphere or roller makes contact therewith.

8. (Previously presented) The clamping device according to claim 6 or 7, wherein:

the rod return mechanism is provided with a guided portion provided in the clamping rod, and

a guide is provided in the clamping main body, which guides the guided portion and switches the clamping rod to the clamp release position.

9. (Cancelled)

10. (Previously presented) The clamping device according to any one of claims 1-4, wherein the piston driving mechanism is provided with an oil hydraulic operating chamber for driving the piston member to the clamp release position.

11. (Previously presented) The clamping device according to any one of claims 1-4, wherein the engagement portion of the clamping rod is provided with plural annular edges.

12. (Previously presented) The clamping device according to any one of claims 1-4, wherein an annular sealing member for sealing a space between the clamping main body and the clamping rod is fitted in the top-end portion of the rod insertion hole in the clamping main body.

13. (Previously presented) The clamping device according to any one of claims 1-4, wherein an air blowing means is provided for jetting air to a top end side of the rod insertion hole through an air passage between the clamping main body and the clamping rod.

14-18. (Cancelled)

19. (New) A clamping device for fixing a clamping object to a base by releasably engaging with an inner wall of a hole or a side wall formed in the clamping object, the clamping device comprising:

a clamping main body fixed to the base and which is communicatively formed with a rod insertion hole and a piston receiving cavity;

a clamping rod which is inserted through the rod insertion hole of the clamping main body, a top-end portion of the clamping rod protruding from the clamping main body, the top-end portion being provided with an engagement portion engageable with the inner wall of the hole or the side wall;

a piston member movably mounted in the piston receiving cavity of the clamping main body;

a rod support mechanism which moves the engagement portion of the clamping rod in a direction roughly rectangular to the longitudinal direction of the clamping rod and switchably supports the clamping rod in the clamping main body

or the piston member between a clamping position of the clamping rod and a clamp release position of the clamping rod;

a piston driving mechanism for driving the piston member between a first position corresponding to the clamping position of the clamping rod and a second position corresponding to the clamp release position of the clamping rod, the piston driving mechanism being provided with a spring for urging the piston member to the first position corresponding to the clamping position of the clamping rod and with a hydraulic chamber for driving the piston member to the second position corresponding to the clamp release position of the clamping rod by hydraulic pressure, said spring being mounted around the clamping rod between the clamping main body and the piston member; and

a cam mechanism for driving the engagement portion of the clamping rod in a clamping direction roughly rectangular to the longitudinal direction of the clamping rod by a driving force of the piston driving mechanism driving the piston member to the first position, said cam mechanism being provided with a sphere or a roller rotatably mounted on a base end portion of the clamping rod, and an inclined portion being formed in the piston member so that the sphere or the roller makes contact therewith, said inclined portion being inclined so as to press the sphere or the roller toward the clamping rod when the piston member moves toward the hydraulic chamber by the urging force of the spring.